What is claimed is:

1. A device for monitoring a cable, comprising:

an imaging device having a field of view;

a target, distinguishable within said field of view of said imaging device, associated with a cable; and

a computer processor connected to said imaging device for analyzing images of said target produced by said imaging device to determine a position of said cable.

2. The device of claim 1, where said imaging device comprises a charge coupled device camera.

3. The device of claim 1, where said imaging device comprises a still camera.

4. The device of claim 1, wherein said target comprises a reflective surface.

5. The device of claim 4, wherein said reflective surface comprises retro-reflective tape.

6. The device of claim 1, wherein said target comprises a portion of said cable.

7. The device of claim 1, wherein said target is self-illuminating.

8. The device of claim 1, wherein said computer processor comprises a frame grabber.

9. The device of claim 1, wherein said computer processor is electrically connected to said imaging device.

10. The device of claim 1, wherein said computer processor is optically connected to said imaging device.

11. The device of claim 1, further comprising an illuminator mounted in proximity to said imaging device.

12. The device of claim 11, wherein said illuminator comprises a laser diode.

13. The device of claim 11, wherein said illuminator comprises a plurality of light emitting diodes.

14. The device of claim 1, further comprising a data storage device connected to said computer processor for storing said position.

15. The device of claim 14, further comprising a communications transmitter connected to said data storage device for sending said data to a remote location.

16. The device of claim 1, further comprising a photovoltaic power source electrically connected to said imaging device.

17. The device of claim 1, further comprising a nitrogen pressurized housing that contains said imaging device and said computer processor.

18. The device of claim 1, wherein said imaging device and said computer processor comprise a smart vision system.

19. A device for monitoring a cable, comprising:

a sealed housing having a viewing port;

a video camera mounted within said sealed housing and having a field of view through said viewing port;

a target, distinguishable within said field of view of said video camera, mounted on a cable having a position;

a computer processor mounted within said housing and connected to said video camera for analyzing video images of said target produced by said video camera to determine a change in said position;

a data storage device mounted within said housing and electrically connected to said computer processor for storing said position determined by said computer processor and a time value associated with said position; and

a communications transmitter electrically connected to said data storage device for transmitting said position and said time value to a remote location.

20. A method for monitoring a cable, comprising:

calibrating a first image of a predetermined field of view showing a portion of a cable to be monitored;

capturing a second image of said predetermined field of view;

correlating said first image with said second image to determine a position of said portion of said cable within said second image; and

reporting said position.

21. The method of claim 20, wherein said calibrating step produces a vertical offset value, wherein said position comprises a cable sag, and wherein said correlating step comprises comparing said first image with said second image to determine a location of said portion of said cable within said second image and calculating said cable sag based upon said location of said portion of said cable within said second image and said vertical offset value.

22. The method of claim 21, wherein said calibrating step comprises the steps of:

selecting said predetermined field of view comprising a target associated with said portion of said cable and a calibration device;

capturing said first video image of said predetermined field of view;

determining a conversion factor for a number of pixels per an actual unit of distance in said first video image;

determining a y-pixel coordinate for said target within said first video image;

measuring an actual ground clearance value between said target in said first video image and a ground position;

calculating said vertical offset value based on said conversion factor, said y-pixel coordinate and said actual ground clearance value.

23. The method of claim 20, wherein said predetermined field of view comprises a target associated with said portion of said cable.

24. The method of claim 23, further comprising the step of illuminating said target prior to said capturing step.

25. The method of claim 20, wherein said correlating step comprises:

defining a predetermined portion of said first image containing a target associated with said portion of said cable;

assigning a first set of intensity values to each pixel in said predetermined portion depending upon its shade;

determining x-y pixel coordinates of said target within said first image;

assigning a second set of intensity values to each pixel in said second image depending upon its shade;

comparing said first set of intensity values to said second set of intensity values to identify a position of said predetermined portion within said second image; and

determining x-y pixel coordinates for said target within said second image, thereby determining said location of said portion of said cable within said second image.

26. The method of claim 25, further comprising calculating a correlation coefficient based upon said comparing step.

27. The method of claim 20, wherein said reporting step comprises:

storing said position and an associated time value; and

transmitting said position.

28. The method of claim 27, wherein said transmitting step comprises transmitting said position by radio waves.

29. The method of claim 27, wherein said transmitting step comprises transmitting said position by a cellular phone.

30. The method of claim 20, wherein said calibrating step further comprises producing a horizontal offset value, wherein said position comprises a horizontal position, and wherein said calculating step comprises comparing said first image with said second image to determine a location of said portion of said cable within said second image and calculating a horizontal position based upon said location of said portion of said cable within said second image and said horizontal offset value.